SCREWWORM

PROGRAM PROFILE

Goal	To prevent economic loss to the U.S. livestock industry from screwworms.
Enabling Legislation	21 USC 114; PL 80-8; Act of February 28, 1947.
Economic Significance	This program conducts activities to prevent the reintroduction of the worm-like larvae of the screwworm fly into the United States by eradicating this insect from Mexico and Central America and establishing a permanent sustainable sterile fly barrier zone in Panama. This parasite causes great damage by entering wounds and feeding on the flesh of livestock and other warm-blooded animals, including humans. Reintroduction of the screwworm would seriously affect livestock producers, consumers, U.S. meat-product exports, and public health in general. Without a screwworm program, losses in the United States would be an estimated $540 million annually: $244.0 million annually for producers and $293 million in lost meat supply. The cost to eradicate the screwworm again from the United States would depend on the extent and severity of the reintroduction and the time of year. A new outbreak similar to the last large outbreak of up to 29,000 reported cases, would cost approximately $1.27 billion: Control costs of $36.4 million; direct costs of $273.9 million; and economic impact of $958.4 million. Continued exclusion would ensure continued animal exports led by beef and pork continue to grow. The U.S. is the largest beef producer in the world with approximately 98.5 million head in early 1999. U.S. beef exports are projected to surpass 1 million tons in 1999 after reaching a record 985,000 tons in 1998. Also, U.S. cattle exports in 1999 are expected to be the strongest since 1992 at 300,000 head.
Principal Approach And Methods Used to Achieve Goals	This is an eradication program. Program methods include sterile fly dispersal, surveillance, quarantine, and wound treatment. The principal approach used in this eradication program is the Sterile Insect Techniques (SIT), a form of biological control. Through this process, millions of sterile

screwworm flies are produced at a facility located in Tuxtla Gutierrez in the Mexican State of Chiapas.

History

Sterile fly method first used in Curacao in 1954. Screwworms were eradicated from the Southeastern U.S. in 1950's and the Southwest in 1966. Southwestern U.S. became re-infested in 1970's and 1980's. The pest was again eradicated from U.S. in 1979 and 1982. An agreement for a joint program with Mexico to eradicate screwworm down to the Isthmus of Tehuantepec was signed in 1972. Sterile fly production began in Tuxtla Gutierrez, Mexico, in late 1976. In 1984, the program succeeded in eradicating the pest to the Isthmus. In 1986, the Mexico-U.S. agreement was amended to allow eradication through the rest of Mexico and into Central America. In 1987, the Mexico-U.S. Commission began eradication efforts in the Yucatan and signed agreements with Guatemala and Belize to allow eradication in those countries. In February 1991, Mexico was declared screwworm free; however, screwworms were again detected in FY 1992. An emergency was declared and eradication efforts were completed in December 1993. USDA entered into agreements with El Salvador, Honduras, and Nicaragua in 1991 and Costa Rica in 1993. Self-sustaining screwworm populations were eliminated from Belize (1992), Guatemala (1993), El Salvador (1993), Honduras (1996), and Nicaragua (1998). Cooperative program activities began in Costa Rica in October 1995, delayed over a year due to the 1992 outbreak in Mexico. USDA signed an agreement with Panama in February 1994 permitting the program to initiate operations in Panama, plan and construct the mass rearing facility, and then operate the facility to maintain a permanent biological barrier.

State and Local Cooperation

An 80%-20% cost sharing agreement exists between U.S. and Mexico; although, either party may make additional voluntary contributions without regard to cost sharing. The Nicaragua, Cost Rica, and Panama agreements are structured in an 85%- 15% cost share arrangement; USDA provides the sterile insects and USDA and host countries share in aircraft operations, field monitoring, and surveillance activities.

Involvement of Other Agencies

ARS conducts research.

RESOURCE DATA

	Obligations			
	Direct	Cooperator	User Fees	Staff-Years
FY 1994	34,774,819	11,166,755	--	91
FY 1995	34,383,211	6,336,563	--	83
FY 1996	31,267,984	6,336,563	--	74
FY 1997	31,509,472	5,788,300	--	94
FY 1998	29,684,222	7,243,588	--	72
FY 1999 (est.)	30,301,000	--	--	72
FY 2000 (est.)	30,301,000	--	--	71

	APHIS	Coop	Total	CCC	Contingency Fund
Cum. (FY 98)	$883,252,189	$138,076,562	$1,021,328,751	--	$2,899,888

RECENT ACCOMPLISHMENTS

El Salvador, Guatemala, Belize, and Honduras

Honduras was declared screwworm-free in August 1996 after completion of country wide reviews to verify their screwworm-free status. The U.S. participation in the cooperative program ended in September 1996. Each country is now responsible for continuing surveillance and inspection activities.

Nicaragua

Nicaragua is now considered technically free from screwworms but is still at risk from infested areas in Costa Rica. We have eradicated screwworm past the widest and most critical point of the Central American isthmus approximately 2,000 miles and six countries away from our borders, providing ever increasing protection for American producers. The program continues to conduct stringent prevention, monitoring, and surveillance activities. The last positive case of screwworm was detected in June 1997. By the end of FY 1998, the program reduced the number of sterile flies released to approximately 5 million sterile flies per week along the Costa Rican border.

Costa Rica

The focal point of eradication has shifted to Costa Rica where cooperative program activities began in October 1995. In FY 1997, the program began eradication activities here and is releasing approximately 60 million sterile flies per week from a dispersal center in Managua, Nicaragua, covering the entire country. Field surveillance now reports an average of only seven to ten screwworm infestations per week with most occurring in the extreme southern part of the country near the Panama border. We expect the last screwworm detection to occur in early 1999.

Jamaica

To further safeguard U.S. livestock, the program is providing technical assistance to Caribbean countries. Jamaica is planning to begin screwworm eradication in the third quarter of FY 1999. Jamaica will purchase sterile flies from the production facility in Chiapas, Mexico with funding from the Food and Agriculture Organization and the International Atomic Energy Administration.

Panama

In FY 1997, the Agency moved 5 key screwworm program personnel from Mexico to Panama to initiate program activities. In July 1998, the program began aerial release of sterile screwworm flies in Panama over western portions of the country. In the first quarter of FY 1999, we began dispersal of approximately 80 million sterile flies per week to the Canal covering the entire western half of the country. Countrywide dispersal should start in the fourth quarter of FY 1999. We expect to complete the eradication of screwworms in Panama in FY 2002. Once eradication is complete, the Program will maintain a sterile fly barrier from the Canal to the Colombian border to prevent the reinfestation of Panama and screwworm-free countries to the north.

Mexico Sterile Fly Facility

In FY 1998, the screwworm sterile fly production facility in Tuxtla Gutierrez, Mexico, produced and distributed almost 7.4 billion sterile insects for an average of 143 million sterile screwworm flies per week.

USDA and the Government of Mexico plan to phase out production at the sterile screwworm facility in Tuxtla Gutierrez, Mexico, by FY 2004. The current facility has been operating continuously for more than 25 years, is

significantly cost-inefficient and has consistently high labor costs. Production capacity is much higher than required to maintain the barrier in Panama. Other reasons for moving the facility include: a) the Government of Mexico has asked that the facility be closed to remove the threat of reinfestation from the aging facility; b) The facility's inflexible design does not allow incorporation of new technologies nor facility treatment, cleaning, or decontamination without disrupting production and increasing the risk of reinfestation of the local area; c) as the screwworm-free barrier moves southward, the cost of transporting sterile flies from Mexico increases.

During the House Appropriations testimony in March 1998, ranking member Rep. Marcy Kaptur (D-Ohio) voiced concern about the affects of closing the sterile fly production plant on the workers at the facility. The House Appropriations Subcommittee report includes language recognizing that closure of the facility in Mexico would add to serious unemployment problems in Chiapas. The committee asked APHIS to "work with other appropriate USDA and multinational agencies to develop possible solutions, including agricultural production cooperatives, which do not compete with U.S. agricultural production."

On April 16, 1999, the joint US/Mexico Screwworm Commission give a severance/buyout package to all of the approximately 635 employees as part of a reorganization. This offer provided 240 percent of legal requirements for severance pay under Mexican labor law. The Government of Mexico provided 100 percent of severance pay plus a 20 percent bonus. APHIS provided an additional 120 percent. This generous severance package is equivalent to three to fours years salary. The Commission then plans to hire back up to 300 employees on a contractual basis. The total cost to APHIS was $5.0 million which should be made up over the next two to three years through savings in reduced payroll costs. APHIS paid for this through Screwworm no-year funds accumulated in prior years.

Proposed Sterile Screwworm Facility in Panama

In 1985, APHIS conducted a feasibility study of screwworm eradication in Central America. This study identified the Isthmus of Panama or the Guatemala/

Honduras border as cost-beneficial locations for a permanent, sustainable sterile fly barrier with the Panama barrier being less costly and easier to maintain. In 1992, a master plan for the proposed Panama facility was completed. Building costs were estimated in 1992 to be approximately $100 million, although no funds for construction were identified. In 1993, USDA's Office of the General Counsel opined that APHIS may make a grant to the Commission which could then construct, lease, or make loan payments for the facility. The Panamanian Government provided a site for the facility near Tocumen International Airport.

In March 1998, the Southwest Animal Health Research Foundation (SWAHRF) presented a proposal for funding construction of the plant in Panama. Under this proposal, the industry would finance design and construction, including an architectural and engineering (A&E) design fees which are typically 10 percent of construction costs. SWAHRF would lease the facility back to the Joint Commission and donate the building to the Commission after recouping their investment. The proposal calls for a facility that would cost approximately $86.4 million for 3 modules. If the Agency were to pay for the A&E design fees out of available funding, construction costs would then be $75.1 million. We expect to have a Master Plan study with a program of requirements and schematics completed by July 1999. The facility should be operational in FY 2002, after a 2-year construction period. The United States and Panama, through the cooperative program, could amortize the cost of the new plant over 10 to 15 years.

We project that operational savings from the shift from a multinational eradication program to a barrier maintenance program, and from the closure of the existing plant in Tuxtla Gutierrez, Chiapas, Mexico, would allow the program to operate and pay lease costs provided that the appropriation remained constant at current levels. Also, as the continental area narrows, future costs of the facility can be accommodated within current program levels without reducing the screwworm operating program.

Backup Facility

The Department does not plan to open a backup screwworm facility in the United States at this time due to costs and the concerns of the livestock industry. The proposed new facility in Panama would produce a sufficient number of flies to maintain the sterile fly barrier in Panama. In addition, the new plant should also provide sufficient capacity to be able to respond to reinfestations of screwworm-free countries, if such outbreaks are detected quickly and control and eradication measures are started immediately.

Panama Donation

The Government of Panama currently has available approximately $6 million of the original $10 million to meet, in part, their obligations under the Panama/U.S. Screwworm Commission which include the construction of a sterile fly facility. The remaining $4 million was used in fiscal years 1997 and 1998 to pay for most of the costs of initiating an eradication program plus its contribution to the U.S./Panama Screwworm Commission. In addition, the Panamanian Ministry of Agriculture and Livestock Development has requested its Government to provide an additional $1 million per year for the next ten years for the new screwworm production plant. Panama also contributed the land for the facility valued at $10 to $12 million.